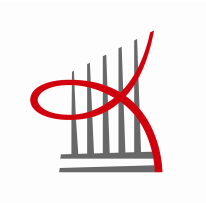

DESIGNING AN INTERFACE CONCEPT OF AN ONLINE MUSIC STORE FOR MODERN MOBILE DEVICES

Case Poimuri

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Bachelor's Thesis
November 2010
Degree Programme in International Business
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Study Programme: Degree Programme in International Business

Title of Thesis: Designing an interface concept of an online music store for modern mobile devices

Month and Year of Completion: November 2010

Supervisor: Jussi Pohjolainen Number of Pages: 47 + 2

ABSTRACT

The background for this thesis came from S-Group's interest to expand toward mobile markets. The reasons that influenced this were the digitalization of music distribution and the development and adoption of modern mobile devices, both of which have revolutionized consumption habits during the last years. The purpose of this thesis was to design a concept of a mobile interface for an online digital music store.

For this process, product concept design methods were applied and recommendations from Keinonen et al. were especially used as advice. Competitors were researched through a competitor analysis, and with the help of that analysis and requisites from S-Group a proposal of how the different sections of the concept should be carried out. These sections are user requirements, appearance and content, payment methods, additional value and technical implementation.

This work suggests S-Group to consider the opportunity to implement the product that is designed in this thesis, as the markets don't have a local version of such an application yet. If S-Group decides that the development would continue, first thing to do would be a user survey. Another aspect worth thinking would be if selling MP3-downloads is a viable business model in the future.

This thesis is confidential, thus information in chapter 5.2 about the concept of the product is not available for public reading.

KEYWORDS: concept design, mobile services, music consumption, digital distribution

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1 INTRODUCTION

1.1 Background of the thesis

The purpose of this final thesis is to answer the question of how an online digital music store could expand toward music markets for modern mobile devices. How I plan to do this is by designing a concept of an interface for touchscreen-based mobile devices that would be used for accessing the store.

The subject is topical as the distribution of different medias, including music, is digitalizing in a rapid pace. Several digital music stores have emerged during the years, the oldest ones starting as early as in the beginning of the 21st century, and there are several online music stores even in Finland. One of them is Poimuri, the music store owned by S-Group, of which this thesis is written about and which works as the case product.

In addition, the technological progress of mobile phones has been enormous in the last several years and they are starting to reach the capabilities of a home computer. What was earlier used for sending simple messages and calling is now capable of displaying complex web pages, running high quality video stream, playing 3D-games, or even working as a modular synthesizer.

These developments have adjusted the customer behavior to a point where the old business models might not work anymore, so companies are researching for new innovations that would attract the customer base as much as possible. The aforementioned aspect is also the premise of this thesis.

1.2 S-Group and Poimuri

1.2.1 The client: S-group

The S-Group (S-ryhmä in Finnish) is a retailing cooperative organization working in Finland. The organization was founded in 1904, and today consists of 22 regional cooperatives operating all around Finland in the markets for groceries and consumer durables through supermarkets, service stations and fuel trade, tourism and hospitality services, agricultural supplies, and automotive trades. It also has activity, consisting of Prisma-hypermarkets and Sokos Hotels, in countries neighboring Finland, namely in Russia, Latvia, Lithuania and Estonia. S-Group has also started the Finland's first in-store bank, the S-Bank (S-Pankki in Finnish).

As a part of their product selection, S-Group is well known for having a wide range of entertainment products, including most of the latest DVDs and CDs in their catalog, which they sell in their Sokos-department stores, in their Prisma-hypermarkets, in ABC-service stations, and in some of their S-Market -grocery stores.

The specialty of S-Group is its loyalty membership. It works by a client investing a small sum on the local cooperative and thus becoming a co-op member, a client-owner of the cooperative. After this, the client receives loyalty card, labeled S-Etukortti, which entitles to some benefits and discounts in S-Group's places of business. It also allows the client to collect Bonus, money that is paid back to the client's S-Bank account for the sums spent in S-Group stores. The percentage of Bonus varies from 1% to 5% depending on the monthly purchases done during the month that it is paid for.

1.2.2 Poimuri: S-Group's answer for digitalization

To gain background knowledge, it is necessary to know what Poimuri is. For this, I interviewed the eCommerce development manager at S-Group, Harri Laaksonen.

Poimuri (figure 1), the online digital music store run by S-Group, was started on the 1st of May, 2008. It was their answer for the ever increasing digitalization of music and other media content distribution, and for the changes in customer behavior resulting

from the digitalization. The idea behind this was that it is necessary to be able to distribute content in digital formats if you want to continue being a full range entertainment content distributor in the future. Additional aim was supporting the device sales and enhancing the customer service in department stores, such as Prisma and Sokos, i.e. being able to sell both the devices and the content, therefore in Poimuri there is a larger selection of products than what would be in other music selling S-Group stores.

S-Group is not a newbie with online commerce. Their first project on this area was Netista.com, an online store for consumer goods that was started in 2000, which unfortunately didn't succeed, despite great efforts focused on it. This time with Poimuri the development has been encouraging, as the growth in 2009 was 200% compared to the previous year. As a competitor, Poimuri has been a moderate player, as the market share from individual song sales for Poimuri was just under 10%.

FIGURE 1. Poimuri online digital music store from S-Group.

The customers are mainly adults, 80% being 20 years old or older, and almost half of the customers are women. Many of the downloads are individual songs, which reflects the change in purchasing behaviors. The pricing of the store is rather normal compared to the other domestic online music stores, individual songs costing 0,89–1,39€, and albums 7,90–12,90€ a piece. Payment options available are the most common credit cards, e-bank payments and prepaid cards that are sold in Prisma's and in the online "S-Lahjakortti"-gift voucher store.

Since its launch, the Poimuri store has undergone two improvements. The first one was a base selection of 100 albums and songs for each genre page, for alleviating the purchasing process. The second one, being currently in implementation, is definitely the largest and most important one, is to abandon the DRM-protection, which is performed by encoding all files that are in WMA-format to the DRM-free mp3-format.

The end target, for which S-Group is trying to reach, would be an online store for digital entertainment with a wide selection from which the buying would be easy and convenient, and you would even gain S-Bonus from it.

1.3 Objective of the thesis

Every thesis has an objective, that is something investigative, developing or clarifying. The objective of this thesis was to help Poimuri to expand toward music market for modern mobile devices. Concrete measures that are done to achieve the objective are called the purpose. In this thesis, the purpose was to contribute to the aforementioned objective by designing a concept for a mobile interface that could be used to access Poimuri. According to Keinonen et al. concept design is a process similar to product design, but with the difference that product design is concentrating on manufacturing and market releasing, thus creating restrictions and need for time efficiency, whereas concept design is more free from technical conditions and time requirements, letting it search for alternative possibilities and future products. (Keinonen, T. et. al. 2003a, p. 10-11, 28-31)

In this case the concept should consist of the following aspects: buying music has to be easy, especially browsing, listening and paying, user interface has to be clear and stylish, it has to work on a touchscreen-based device, as well as be attractive and commercial, be cross-platform and social media should be integrated in an easy-to-use way.

To take the aforementioned aspects in consideration, I will do a competitor analysis to receive a clear vision of what is already on the markets. I will also analyze and describe the possibilities for the appearance of the user interface, usability, users, payment methods, social media integration and platform.

1.4 Structure of the thesis and research methods

The thesis consists of the following parts: the frame of reference that includes material about the development of music distribution and mobile technology, the theory about concept design that is intended to lead the concept designing process in practice, the competitor analysis to get a clear vision of what is on markets right now, and the proposal of the concept constructed on the basis of the preceding information, ending with a conclusion of the thesis.

In the frame of reference that consists of the chapters about digitalization of music consumption and distribution, and about the technological evolution of mobile phones, I have used several sources, mainly books containing relevant information and valid market researches. One of the central sources used here is a book by Apajalahti & Sotala (2010), called “Jokapiraatinoikeus”. This book, though written about a controversial subject, brings out the difficulties that have led to the digitalization of music distribution and the changes in customer behavior that have emerged due to technological advances.

The most important source in the chapter about concept design is a book edited by Keinonen et al. (2003) called Tuotekonseptointi. With this book as a basis, I have defined what concept design is and why it is done. Designing an interactive service is also closely affiliated with the concept of usability. To define this I have used

descriptions about components of usability by Nielsen (2003) and Wiio (2004) as guidance.

In this thesis the actual concept design process is divided in two parts: to the competitor analysis where I have compared 14 different online digital music stores on the basis of catalog variety of the store, pricing, payment methods supported, formats sold, social media integration, usability possibilities on a mobile device, website optimization for mobile device and existence of a mobile applications for the store.

With the basis of that analysis, the requirements presented by S-Group, and my personal visions, I have outlined the concept that would be the most functional, taking into consideration the market potential, the user, appearance and content, payment methods, additional value and technical implementation. As this thesis is confidential, the information about the concept of the product is not available for public reading.

2 MUSIC CONSUMPTION IN A STATE OF REVOLUTION

In this chapter, it is explained what happened in the music industry, how the formats have evolved towards the digitalization, and how rapid technological advancing has caused a major revolution. This information is explained because the service itself is all about distributing and selling music, thus knowledge of how music is sold and consumed today is relevant.

2.1 From vinyl to cassettes and copying

Anyone who has lived during 1970's and hopefully a couple of decades after will remember very fondly the fact that recording gramophone records to cassettes was the thing to do, and that Philips Musicassette was the instrument for the job. Philips introduced this soon-to-be popular form of musical media in 1963. In 1967 there were already 4 million cassette players and 13 million pre-recorded music cassettes on the market, proving that the cassette was a huge success. (Billboard, 1967, p. 1, 72)

But success didn't come without its consequences. This was the first time when copying music, from a record to a cassette, seemed like a threat to the recording companies. Although cassettes were re-recordable already during the 1970's, in the 1980's the threat loomed even larger, due to a new innovation presented by Sony. The company debuted the Walkman, the first truly portable cassette player. This resulted in an enormous increase in cassette sales, and home taping started to look like a far greater issue than it had been before. (Haupert, M. 2006, p. 69)

Although seen as an issue by record labels, home taping was not illegal. During this time, and for quite a while afterwards, the record sales fell under the doctrine of first sale. This meant that once you bought a record, it was yours. Taping a private cassette of an album you had purchased and listening to it in your car was okay according to legal terms, but borrowing an album from a friend to copy for you on a cassette started to sound like foul play. (Baskerville, D. & Baskerville, T. 2010, p. 101)

This controversy of home-recording continued throughout the '80s and '90s, when a British music industry trade group launched the "Home Taping Is Killing Music" campaign in 1984, with a skull-and-crossbones logo and anti-taping ads in British media, featuring some well-known artists. (Shepherd, J. et al. 2003, p. 489)

2.2 CD as the first digital format

On August 31, 1982, four companies, Sony, CBS/Sony, Philips, and Polygram announced that they had jointly developed the world's first Compact Disc system, also announcing that they would commence domestic sales in the autumn. News reports flooded from the evening of August 31st to the following morning, telling about this new technology. It was heralded with praises, such as "the development of the amazing digital CD player" and "the arrival of the digital age." The player for 12 cm CDs was agile, offering a one-touch selection function. It was compact, lightweight and utilized a medium that could endure use for almost a lifetime. It was a dream come true for many high fidelity audio enthusiasts, and it represented a fresh wind of change for the recession-ridden audio equipment industry. (Sony, n.d.)

The Compact Discs became widely available shortly after the home taping-campaign, but the technology to record them at home didn't exist yet. Recording labels saw digital audio tape (DAT) as another grave threat, with its ability to make pristine digital copies of pristine CDs. (Shepherd, J. 2003, p. 489)

2.3 Birth of the MP3 format

In 1989, the first patent for MP3 audio compression was granted. It was based on the work of Motion Picture Experts Group, an engineering alliance of which MP3's full name contains an acronym (MPEG Layer-3). The research was completed by Fraunhofer Institut in Germany, but the technologies surrounding the compression weren't mature enough for MP3 to succeed. (Hill, B. 2003, p. 3)

Fraunhofer also developed the first software to play MP3's in the early 1990s. Though developed by the institute behind the underlying technology, it was not a success. However, in 1997, developer Tomislav Uzelac of Advanced Multimedia Products invented the AMP MP3 Playback Engine, the first successful MP3 player. Inspired by the success, two university students, Justin Frankel and Dmitry Boldyrev decided to port AMP to Windows and created Winamp. In 1998, Winamp became one of the most successful MP3 players to date, boosting the success of MP3 even further. (Hill, B. 2003, p. 3)

With the introduction of Diamond Multimedia's Rio in the United States, began the era of portable MP3 players. This was the first headphone stereo that used solid-state flash memory to store and play compressed MP3 music files, either downloaded from the Internet or "ripped" from a music CD. The ensuing popularity of MP3 portables led dozens of companies to offer compressed-music portables, and it led to the development of additional audio codecs for use in PCs and in portable devices. However, to date MP3 has remained the most commercially successful of these codecs. (Dolgin, A. 2008, p. 448)

You don't hear too much about Rio nowadays, but one portable MP3-player and its brand has managed to live longer that the others. That is the iPod. The first iPod was introduced in October, 2001, by Apple. As masters of suspense and hype, they sent out invitations for a media event that was all about “the unveiling of a breakthrough digital device”, and added the mysterious clue at the bottom that said “Hint: It's not a Mac.” This sparkled the imagination of news media and fanboys, some even speculating that Apple would unveil "something like a Palm Pilot on steroids". As the first iPod, a portable hard disk music player, was introduced in the event, Steve Jobs, the CEO of Apple, described it to be "ultra-thin", "ultra-portable" and "to (be able to) have your whole music library with you at all times". Jobs also demonstrated how the iPod automatically synchronizes itself with iTunes jukebox software, a feature that hadn't yet been available on other devices. "Isn't this cool?" enthused Jobs, showing how the iPod automatically downloads new songs when plugged into a computer. "It's never been this fast or this easy before," he continued. "We've all heard 'plug and play' before. This is plug, unplug, and play." (Kahney, L. 2005, p. 10)

2.4 Piracy and illegal downloading

While the MP3 gained popularity, so did the side effect similar to home taping with cassettes. In 1998, MP3 helped the consumers to download music easily from the internet, and so music piracy became a cult activity. Again, this created fear and havoc among the recording industry, which led in a hefty amount of lobbying. The result was Digital Millennium Copyright Act. The DMCA made it criminal to bypass any technology that controls access to a copyrighted work, for example uploading to a file sharing network a song that had previously existed only on any of the previous medias, which is how the labels got rid of Napster, the most famous file sharing service used for music piracy. (Popular Science, 1999, p. 72)

Now that music was untethered from the formats to which it had been bound since the invention of recording, the record industry could redefine the relationship between music buyers and record companies from an outright sale to a licensing agreement. This started a trend among some record labels and online stores to sell music, movies, video games, computer programs, and even e-books with digital rights management (DRM) technology included to prevent copying or other unauthorized use. There remains a strong backlash against the practice, which has reduced the use of DRM in many web stores, including the Apple iTunes. (Sexton, J. 2008, p. 198)

2.5 Rise of music web stores

Speaking of which, on April 28, 2003, after a few not-so-successful attempts from various other companies, the iTunes Store was started by Apple. As the iTunes was already an established application and it was successfully used in the seamless symbiosis between Mac-computers and iPods, Apple saw here a valuable opportunity. After all, its idea was simple: Provide a virtual store where people can buy and download digital music on-demand. Initially, the store only hosted 200,000 tracks and only Mac users were able to buy and transfer music to the iPod, letting PC users to wait until October 2003 for the release of the Windows version of iTunes. (Kahney, L. 2005, p. 14)

Since iTunes arrived, the popularity of online music stores started to rise. But how did this affect the music sales, as the major labels were telling that illegal downloading was hurting their success? We can look at the figures, measured by Nielsen SoundScan, a company that collects the sales data in the United States region. They report top sales results for music in 2008: unit volume increased 10%, when looking at all formats total (albums, singles, music videos and digital tracks). Total sales of music managed to achieve 1,5 billion unit mark, whereas in previous years, sales have been 1,4 billion (2007), 1,2 billion (2006) and one billion units (2005). And the last week in year 2008 saw sales higher than in any previous week, whopping 65 million units, the previous record being 58,4 million during 2007 Christmas week. (Apajalahti, A. & Sotala, K. 2010, p. 51)

How would a recession that has been rampant during 2008–2010 affect the sales? Apparently, according to the statistics it doesn't affect the sales too much. Growth seemed to continue even in 2009, as total sales amounted to 1,545 billion units, 2,1% from previous year. The interesting part was that this whole uprise seemed to be driven by the digital sales. 1,16 billion individual pieces (increase of 8,3%) and 76,4 million albums (increase of 16,1%) were bought in digital form. Britain is a part of this rising phenomenon, with the all-time sales record in 2009 of its music singles -market, 99% of these singles sold in digital form. These figures seem rather curious, as at the same time file sharing has only been growing in popularity. Shouldn't music business be disappearing in a steady pace, if file sharing really is detrimental for music sales? Partly yes, as can be seen in the decrease of entire albums. But overall the music industry should be doing rather okay. (Apajalahti, A. & Sotala, K. 2010, p. 51)

The previously mentioned figures make it seem that everything is just fine, but instead we can see a decline in Finnish music sales. As digital market has been the leading force in the rise and prosper of music business in the US and Britain, it can be noticed that this area is the main problem in Finland. When compared to other countries, Finland has inadequate opportunities to purchase music in electronic form. Sales of music rights are divided by country, therefore difficulties arise when trying to obtain viable contracts for digital music distribution, as Finland is such a small market area. The need for big record labels to restrict the selling to certain regions, by offering only standard contracts containing high prices and DRM, requesting for absurdly large

licensing fees, and not allowing to sell anywhere else than in Finland, are few of rather good reasons for the frighteningly small amount of innovation and new players that can be seen in Finland. (Apajalahti, A. & Sotala, K. 2010, p. 54)

The second author of the pamphlet “Jokapiraatinoikeus” encountered this phenomenon in effect, when trying to buy a song as a present for his friend. The track, Groove Coverage's version of the classic song “Poison” by Alice Cooper, is not found in any Finnish online store, not on a CD or in a digital format. The track was eventually located in Amazon.com, but they refused to sell this track outside the United States. Buying the track was a cumbersome process that was performed by a US resident buying the track for himself, after which sending it to the author, continuing to his friend. This is a good example of how the lawful acquisition has been made so difficult, that people feel like not buying it. Also, the fact that it's not even possible to buy some music at all from the consumer's home country is a rather fine reason for Finnish sales falling and foreign sales rising. This can lead to the consumer getting used to buying from a store that can actually deliver the desired content. (Apajalahti, A. & Sotala, K. 2010, p. 56-57)

2.6 The new forms of music consumption

When talking about innovations that can make the situation better in Finland, a recent one has arrived from nearby. In 2008, a Swedish music service called Spotify appeared online. It is currently available in Finland, Sweden, Norway, Spain, France and Britain. By October 2009, the service had managed to collect around five million users. The concept itself is simple: the user can choose between an ad-funded and paid versions. The ad-funded version is free to use, whereas the price of paid version is 10 EUR per month. In return, the user gets unlimited access to all the music in the service, of which some six million copies could be found in October 2009. New tracks are added regularly. Searching music happens conveniently by entering a search term in the program to its own search service, and users can also form their own playlists from songs and share them with each other. Complimentary users have to keep the machine onto the network service if they wish to listen to music, but paid users can download 3 333 tracks at a time to listen to without internet connection. In addition to the service on

computers, it is also available for some cell phones. (Apajalahti, A. & Sotala, K. 2010, p. 57-58)

File sharing opponents try to use "You cannot compete with free" as almost a sacred truth, when it seems rather obvious that services similar to Spotify are specifically able to compete with illegal file sharing. Sightly rarer songs are after all harder to find in the file sharing community. In a commercial service all such music to which there are rights to may be available at all times. Also, in Spotify all of the songs stream almost directly instead of an indefinite waiting period. And this is the important matter: when finding a desired song is easy and simple, it is likely that interest to use other ways decreases. Additionally, many accustomed to file-sharing think that it is a good thing that the original authors can get compensation for listening to their music, which sounds like a possibility to increase the popularity of Spotify. (Apajalahti, A. & Sotala, K. 2010, p. 58)

There are also other similar products and services that have existed before Spotify, or that have appeared afterwards. Services, such as Last.fm or Pandora, have been online before Spotify. Unfortunately these haven't acquired the same number of success in Finland for various reasons. Then there are the new competitors, such as Grooveshark, which have emerged to offer similar opportunities as Spotify to countries that have no availability yet, such as the US.

3 MOBILE DEVICES AND DEVELOPMENT TOWARD SMARTPHONES

In this chapter I will explain the history of mobile phones, how it all started, and how they have evolved to an everyday companion and computer that can perform almost any activity that you throw at it. This chapter also explains why modern smartphones are a good choice for developing a mobile interface of an online music store, though the main reason that touch-based mobile phones are the platform for which this application concept is designed, is that this was S-Group's preferred platform for this concept. Additionally, the usage of this service needs an internet connection, therefore a mobile phone would be a natural choice.

3.1 The beginning of the mobile phone era in Finland

It all started from the first GSM-network, opened in 1991 by a Finnish company Radiolinja. The year after, in 1992, Jorma Ollila became the CEO of Nokia and decided to focus the company on telecommunications. The first result of this focus was the first mobile GSM phone from Nokia, the 1011. (Nokia, 2000)

In 1998, Nokia's plans for telecommunication proved to be a huge success, as the former rubber-boot producer was announced to be the world's leading manufacturer in mobile phone markets. (Nokia, n.d.)

Today, like almost the whole world, Finland is filled with mobile phones. According to Statistics Finland, in 2008 there was 6,9 million mobile phone subscriptions in Finland, even more than what the population is. And the amount of subscriptions seems to be only rising. (Statistics Finland, 2008)

3.2 Mobile phones and content consumption in Finland

Buying multimedia content with a mobile device has been an activity among consumers in Finland for over a decade. This activity started with mobile logos and ringtones.

The first service for ringtones, called Harmonium, was delivered in 1998 by Radiolinja. It featured tools for users to create monotonic ringtones themselves and for other users to buy and download them over-the-air via SMS to the mobile devices. Shortly thereafter, in 1999, a similar service was started for operator logos by Saunalahti, including creation tools and downloading via SMS. (Halper, M. 2004)

3.3 The start of the mobile internet

In June, 1997, a group of mobile telecommunication companies founded a consortium for addressing the problems of wireless internet access. The WAP Forum, consisting of Ericsson, Motorola, Nokia and Openwave, developed a new standard for mobile internet, called WAP, ensuring that access is not limited by vendor or underlying network technology. (Nokia, 1997)

In 1999 Nokia launched its first mobile phone that supported WAP, helping the internet go mobile. Although the beginning of WAP was a small failure, due to sub-par speed of the network at the time, this all started the movement towards development of what smartphones are today. (Nokia, n.d.)

The progress toward better transfer protocols and connection methods, led by growing demand for mobile internet access, was a motivator for mobile phone development focusing on using web via a browser on cell phones. Starting from WAP browsers, the mobile phone manufacturers have developed browsers for their mobile devices, the ultimate goal being to read and display websites as they would be presented on a desktop browser. The first mobile browsers were intended for displaying stripped down versions of web pages and pages created with WML, wireless markup language, which was developed for WAP-content.

Nowadays, most of the current handsets are capable of handling features such as Javascript, AJAX and CSS 2.1, making it possible to browse the World Wide Web seamlessly with a device that can fit in your pocket. These techniques also create possibilities for developing richer web-based applications and customer interactions.

3.4 Mobile phones and music content

The first music content available for purchase to a normal consumer was the aforementioned monotonic ringtones. This was happening pretty much at the same time with utilization of mp3-encoded music and music downloading, Napster, etc. As the first mp3-players started to find their ways to the consumer's pockets, the mobile industry started searching for a way to combine the ability to play mp3's with their mobile phones.

The first phones with mp3-playing capabilities arrived in Korea in 1999. Unfortunately, due to inefficient technology and small interest from consumers, they disappeared quite fast, only to reappear over a year later. This led to a series of innovations and by 2005 the success could be seen, as more than half of all music sold in Korea that year was sold directly to phones. This inspired the major handset manufacturers to act swiftly, and by the end of 2005 Nokia, Motorola, Samsung, LG and SonyEricsson had released musicphones. In 2006 the sales of mp3-players in phones exceeded the sales of normal mp3-players by huge numbers. (D'Amico, M. 1999, p. 50)

Today mobile phones' capabilities for playing music are spectacular compared to the situation they were in ten years ago. Phones can store tens of gigabytes of music and other data to the internal memory or a separate memory card, which translates to thousands upon thousands of separate tracks of music. For example, a phone with 16 GB of memory can hold approximately 2000 mp3-encoded songs, compared to the 64 MB, or one full-length record album with low quality compression, that the first music phones could contain.

A recent study from comScore, published in May 2010, surveyed the mobile phone usage for listening to music in US and in EU5 (UK, DE, FR, ES and IT). According to this study, EU5 is leading the mobile music usage compared to US by nearly a double, the highest number of users coming from Spain, where of all local mobile subscribers, 30 percent used their phone for listening to music. The study also reveals that mobile music consumption in Europe is evidently increasing, as the growth of mobile music users was roughly 10% higher than last year. (ComScore, 2010a)

3.5 Smartphones and the change in mobile usage

The evolution of cell phones has progressed quite rapidly. From the first GSM-enabled phones, to the first WAP browsing handsets, the next step has been what we call smartphones. These mobile devices could be described as a combination of a phone and a computer. The operating system is diverse and capable of performing tasks similar to a normal PC, and the hardware that is inside resembles the ones that powered high-end desktop computers 7 years ago. This all has made browsing the internet and using applications a cinch for the end user, offering endless possibilities for better content consumption.

The mobile bandwidth speed has also improved, making a modern cell phone capable of seamlessly streaming high quality music and video via a 3G connection. Downloading applications and content from the World Wide Web is a piece of cake, therefore this makes it an almost perfect platform for mobile music and digital content store, and services such as Spotify Mobile, Amazon.com MP3 downloads and especially iTunes have proven this plausible.

After Apple introduced iPhone to consumer markets, the consumption of digital entertainment with a mobile phone has increased rapidly. A press release about a research covering this topic was released in FinanzNachrichten.de on June 15th, 2010. In this article an analytics business QAim claims that iPhone is the most used platform for browser-based services, with over 30 percent of visibility. (QAim, 2010)

What was different in Apple's design for their phone was that the user interface was beautiful, easy to use and intuitive. As the phone navigation happened straight from a touchscreen, it gave Apple the possibility to use their UI design skills the same way as with Mac OS X. Basically, they managed to create what Nokia and other major manufacturers were trying to achieve for years, an easy-to-use combination of mobile phone and media player. This was also possible due to Apple's success with iTunes, their MP3 store/music player/iPod media manager. Together with iPhone, Apple released iPod Touch, which was basically just an iPhone without all the phone capabilities.

Other companies have also wanted a piece of the action, and after iPhone's success the market flooded with touch-based phones. Regarding the future, the most interesting challenger comes from Google, who is developing the Android OS. This operating system is designed for touch based devices and is used in cell phones, tablet computers, couple of e-readers, a netbook and a handheld console. A wide range of Android based tablets are scheduled for production in the near future, especially after Apple released the iPad. Android is used by many mobile manufacturers, such as HTC, Samsung, LG, Motorola and Sony Ericsson.

Regarding the market penetration for Android-based devices, DNA (DNA, 2010) and Elisa (Elisa, 2010), both being Finnish mobile network operators, have made press releases of how more and more people buy smartphones when purchasing a new mobile phone. Elisa states that Samsung Galaxy S, an Android-based smartphone, was the second most bought phone in September 2010, the first one being Nokia 5230, and two models from HTC, Desire and Wildfire, were in the top 15. According to Gartner (Gartner, 2010), the worldwide market share of phones with Android as their operating system was 25.5% in the third quarter of 2010. For comparison, the same number for iOS in Q3 2010 was 16.7% and for Symbian 36.6%.

Other contender in this area is Nokia, which is offering their previously called Maemo-, nowadays known as MeeGo-, a collaboration with the processor-manufacturer Intel, and Symbian-based mobile phones with their Ovi-store, an equivalent for iTunes App Store. There is currently only one phone with Maemo, the N900, on the market and 13 phones that are based on their Symbian-platform. Regarding the current market share for Nokia, according to a study made by ComScore (ComScore, 2010b), the market share for Nokia in Europe is still 54.4% of the overall market share, but it has dropped 14.4% from 2009. According to a study by iSuppli (iSuppli, 2010) Nokia had a global market share of 39.7%. According to Nokia (Nokia, 2010), they estimate that in the third quarter of 2010 their mobile device market share was 30%, and their converged mobile device market was 38%.

3.6 Smartphone usage today

When searching for accurate numbers about mobile device usage in Finland, one comes easily to a conclusion that there seems to be no recent statistics provided. The most recent ones are from year 2008, others being simply estimates or predictions.

According to a report "Mobile content services Market in Finland 2009–2014" conducted by Idean in 2009, 1.2 million Finns accessed internet with their mobile phones in 2008, whereas in 2007 the number was 0.9 million. They also promote the active development of mobile devices as a reason for rapid increase in mobile internet usage. Quoting the report: "The mobile device base has a strong influence on mobile content service uptake and development. The device base is developing continuously and today there are more mobile devices with advanced features than ever before. Smart phone penetration has increased and there were around 1.2 million smart phones in the Finnish mobile networks at the end of 2008." The report also claims that for the mobile content market, application stores, public transport, music and games are expected to be growth drivers in 2010–2014. (Idean, 2009)

4 THEORY ON CONCEPT DESIGN

In this chapter I take a look at the theory of concept design, what it is, how it is done, and how and why user information and usability should be taken into consideration when doing concept design.

4.1 What concept design is

We should start by forming a picture of what a concept is. For this, Karl Ulrich and Steven Eppinger have provided a good definition: “A concept is a description of the form, function and is usually accompanied by a set of specification, an analysis of competitive products, and an economic justification of the project.” Additionally they state, that “a product concept is an approximate description of the technology, working principles, and form of the product. It is a concise description of how the product will satisfy the customer needs.” (Ulrich, K. & Eppinger, S. 2000, p. 17, 108)

As plenty of the theory and practicality in concept design is derived from product design, it is important to define product design as well. According to Keinonen et al., product as a concept has formed to mean something that is brought to markets for trading. This makes product design a process that is mainly concerned with manufacturing the product and releasing the product to markets for customers to buy. The design activities are restricted by manufacturing requirements, correct timing of market arrival, amount of products delivered, exchange value and quality features. Therefore it is a process that is pursuing to advance systematically, focusing on punctual and clear specifications, and is imposed with strict time efficiency requirements. (Keinonen, T. et. al. 2003a, p. 10-11, 28)

And then there's concept design. When compared to product design, it doesn't go straight to solving planning based problems, instead it is trying to clarify the planning challenges and to look for alternative possibilities. By doing this, concept design defines the main characteristics of the planning process. Concept design uses the working habits of product design in several ways, without using the manufacturing as a goal. As concept design doesn't have the goal to get into manufacturing or arriving to markets, it

is possible to cut loose from the concrete technical conditions and compatibility requirements and from the short term goals required from sales. This allows the concept design to look further into the future, with a target to find ideas for upcoming products before being set in the strictly scheduled process of product design. Then again, according to Keinonen et al., “concept design doesn't try to predict future so much as to create a pair of antennas for exploring the currently rapidly approaching and uncertain future.” (Keinonen, T. et. al. 2003a, p. 28-31, 40; Keinonen, T. et al. 2003b, p. 50)

Concept design has several different targets that according to Keinonen et al. can be e.g. these:

- Preparation for the executing phase of product design.
- Making seeking for fundamentally new solutions possible.
- Plotting the future and making possibilities concrete for supporting company's strategic decision-making.
- Developing learning and creativity on individual and organizational level.
- Influencing the expectations of the audience and paving the way for a future that is more favorable to the company. (Keinonen, T. et. al. 2003a, p. 35)

Keinonen et al. also mention in their book, that a good concept has to be proactive, justifiable, centralized on the essential and an understandable description of the product. With proactive, it is meant that the concept is presented before similar definition is created through a result from product research. Justifiable means that the description of the concept has to support and help to understand the solutions presented in it, and it has to connect to the phenomena's that are expected to be meaningful. Centralized on the essential, meaning that it is enough to describe the features that are simply most important to the product. Understandable means that the concept has to deliver its message in a form that is easy to understand. (Keinonen, T. et. al. 2003a, p. 35-36)

4.2 How concept design is done

The concept has to take a stand on the supposed needs and wants of the users, the possibilities that technology has opened and in addition, answer to the true and estimated actions of the competitors. It has to tell the essential solutions that separate the concept from existing products or other concepts. These features might connect to the central activities or benefits that they bring to the user, dimensions of the user experience, appearance, style, ergonomics, interaction, central technologies and their maturity, size of the product and thought user segment. (Keinonen, T. et. al. 2003a, p. 35-38)

Concept design includes e.g. identifying the needs of the user, technical aspects, societal respect, company's objectives, designer's own vision and knowledge, experiences, feelings, and conditions set by the work environment. In concept design, lot of the weight is in clarifying the output data of the design. But then again there are several aspects that are not always necessarily defined in concept design, such as technology basis, target markets, users or marketing timing. (Keinonen, T. et. al. 2003a, p. 37; Keinonen T. et al. 2003b, p. 51)

According to Keinonen et al., there are three different, however connected roles in concept design: defining concept design, developing concept design and visualizing concept design. (Keinonen, T. et. al. 2003a, p. 41)

Defining concept design is integrated to other phases of product development, its goal being to create an extensive description from which the detailed design can begin. The product that is being designed is already known and strategic decisions about product placement in company's product portal have already been done, so typically it is about defining product versions for the next product generations. (Keinonen, T. et. al. 2003a, p. 41)

In the developing concept design, possibilities opened by new technologies or new market areas and increasing user needs are opened and made understandable, through which company's learning and decision making is supported regarding upcoming product generations. The focus of examination can vary from developing individual

product features, to recognizing, creating and developing all new service concepts. (Keinonen, T. et. al. 2003a, p. 41)

The visualizing concept design is done to support the company's strategic decision making. It outlines the future and development of the industry, the company and its products, and develops planning know-how of the company. The results of this type of concept design are not supposed to be taken advantage of immediately or sometimes ever. (Keinonen, T. et. al. 2003a, p. 41)

The design for this concept for Poimuri, described in this thesis, is a combination of defining and developing concept design, defining because the product is already known, but developing because it is searching new possibilities from the technologies that have recently emerged.

When concept design is being done, same work methods can be used as in product design: first you ponder, what you are really doing, after which you gather information relevant to the subject that is sorted and interpreted to clarify the prerequisites and possibilities. On the basis of the aforementioned, solutions are created, and in every state the work evaluated and results are presented. The work is guided by the designers' vision of the goal of the activity. (Keinonen, T. et. al. 2003b, p. 50)

Tools that can be used in the concept design process, are e.g. metaphors, scenarios or design drivers. These design drivers could be described as more like exact definitions of the goals for the conceptualization. These are important to concretize the vision, as they specify what is solved in the concept design and what information and experts are needed to support the work. I am planning to use the design drivers when designing the concept (chapter 5.2.1). (Keinonen, T. et. al. 2003b, p. 52)

ISO 13407, the process standard for user-driven design describes the design process of interactive systems. The work phases are described in the chart (figure 2).

First, the process is planned, concentrating and dedicating the process to needs of the user of the interface being planned. After this the context, in which the interface will be used, meaning the characteristics of the user and the environment, where it will be used,

has to be understood and specified. This is followed by specifying the functional requirements for users and organizational requirements in relation to the context of use description. The next stage is to create potential design solutions by drawing on the established state of the art and the experience and knowledge of the participants, after which it is all evaluated to provide feedback for improving the design or to assess whether user and organizational goals have been achieved. If the latter is the case, the product is complete.

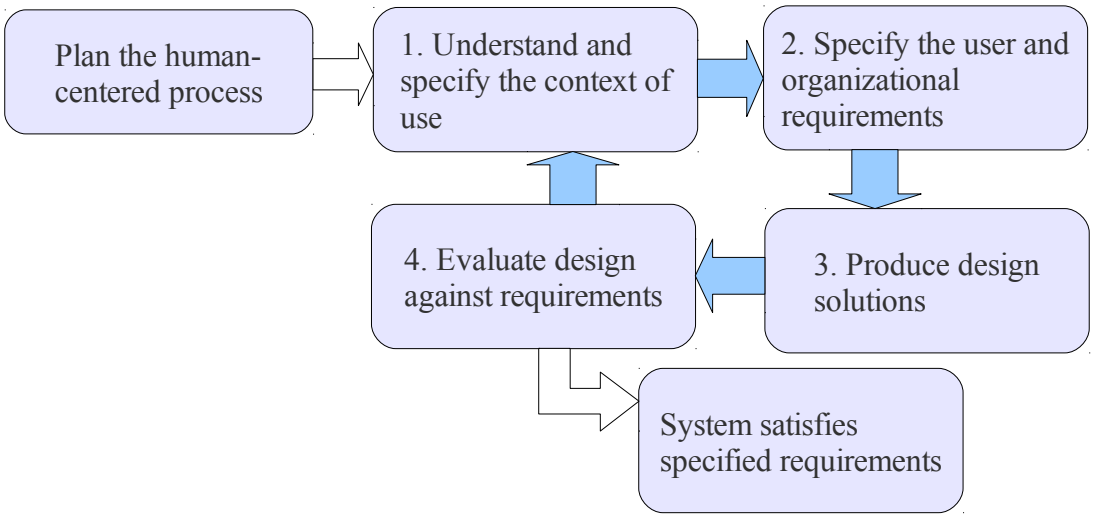

FIGURE 2. Work phases according to ISO 13407 standard

4.3 User information and usability

User information is an extensively important part of concept design; it provides the answer to the question of what factors affect the user experience. User's point of view is essential when developing an interactive product, as the product is being designed for the user.

Jääskö and Keinonen (Jääskö, V. & Keinonen, T. 2003, p. 86) lists matters that influence the user experience like this:

- User's persona, experience and lifestyle in relation to socio-cultural context.
- Product's novelty value and relationship to other products on market from the person's perspective.

- Physical dimensions and aesthetics of the environment relating to usage and owning, and the atmosphere consisting of the organization and other people.
- The functional environment relating to usage and ownership with its activities, events and communication with other people.
- Formation of the significance of the product from events during the usage and from the impact of the existing product environment.

A rather significant term in user-driven design is usability; this describes how smoothly the user uses product's functions to get to desired goal, so it's basically about the interaction between a man and the machine. (Kuutti, 2003, p. 13)

According to Antti Wiio (Wiio, 2004, p. 29-31) a program or a system with good usability is defined by understandability, effortlessness, comprehensiveness and aesthetic pleasantness. In this context, understandability means that it is easy for the user to reason how to get to the desired goal, effortlessness means that the application lets the user perform the desired actions as easily as possible, comprehensiveness means that the application offers all the features and data that the user needs to take care of the situation or the need that the application is meant for, and aesthetic pleasantness means that it signals quality and know-how to the user.

One of the top-of-the-line sources for knowledge in usability is Jakob Nielsen (Nielsen, 2003, web page), a leading web usability consultant, who defines usability by these five quality components:

- Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design?
- Efficiency: Once users have learned the design, how quickly can they perform tasks?
- Memorability: When users return to the design after a period of not using it, how easily can they reestablish proficiency?
- Errors: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- Satisfaction: How pleasant is it to use the design?

It seems that though Nielsen has credibility on this area a whole lot, the criteria presented by Wiio is more suitable in this context, mainly for the fact that there are no user surveys conducted, which makes the usage of the Nielsen criteria fairly hard.

5 THE CONCEPT DESIGN PROCESS FOR POIMURI MOBILE INTERFACE

5.1 Competition analysis of online music stores in Finland

When considering bringing a new product to the market, it is necessary to see what the market is like. Karl Ulrich and Steven Eppinger write in their book that "unless the team expects to enjoy a total monopoly, the relationship of the new product to competitive products is paramount in determining commercial success." The target specifications are needed to determine how the supposed product fits in the current marketplace, to agree on the detailed positioning of the product relative to existing products. Ulrich and Eppinger add, that "Information on competing products must be gathered to support these positioning decisions." (Ulrich, K. & Eppinger, S. 2000, p. 88-89)

This chapter is the competition analysis that was conducted to get a bigger picture of the online music retail market in Finland today. 14 different online music stores similar to Poimuri were surveyed, 12 of which were selling digital music files, and 2 that were selling music through online streaming.

These stores are Poimuri, Meteli.net Downloads, CM Store.fi, Tune Download Shop, Download.NetAnttila, DNA Musiikkikauppa, NRJ Kauppa, MTV3 Store Download, GoMobile Musiikkikauppa, 7Digital, Ovi Musiikki and iTunes Store. The two contenders of the new waves of music business were the streaming services Spotify and Grooveshark. The 12 stores were chosen to see how well other competitors had performed in the area that Poimuri is trying to perform, and the streaming services are there to see how they compare to the contenders that have been longer on the markets.

The information was gathered between September and October 2010, and are all accumulated by personally using the stores and the services. The attributes that were compared were the following: catalog variety of the store, pricing, payment methods supported, formats sold, social media integration, usability possibilities on a mobile device, website optimization for mobile device and existence of a mobile applications for the store. These were chosen to see an overall picture of the music stores and how they compared to each other, and if any of the local online digital music stores offered

something that Poimuri was trying to develop into, more specifically if they had developed something that answered the evolution of the markets.

5.1.1 Scope and variety of the stores

The amount of songs in the stores varied between 4 million songs and over 11 million songs. Unfortunately 7 of the stores didn't reveal any details, not even an estimate. Some of the unlisted ones used a vague phrase, such as “millions and more all the time” on their information page. Stores with most songs present were iTunes Store, 7Digital and Spotify, iTunes and 7Digital holding over 11 million songs, and Spotify over 10 million. When inspecting more local contenders Meteli.net Downloads took the next place, with exactly 8.355.871 songs in their catalog according to a search query done on their website on 24th of September, 2010. After that came the CM Store.fi, with about 6 million songs, and then Poimuri with around 4 million songs in their catalog. With Grooveshark the song count was a bit tricky, as the users have possibility to upload their own MP3s to the application, thus expanding the catalog even further.

The four big labels, Warner Music Group, Sony BMG, Universal and EMI, were present in almost all stores, exception being Tune Download Shop, that sold only 30 second ringtones from the artists signed on Universal. Meteli.net Downloads also claimed that it cataloged music from smaller indie labels such as XL Recordings and Domino, though other stores listed some albums from these labels as well.

5.1.2 Pricing and payment policies

Pricing for the stores was determined by comparing the prices of two recently released albums and it's individual tracks, one from a Finnish artist and one from an international artist. The albums chosen were “Astronautti” by Pariisin Kevät and “The Final Frontier” by Iron Maiden.

When comparing the prices for the album “Astronautti” from Pariisin Kevät, the price range varied from 9,49€ to 12,95€, the lowest being on 7Digital, as the place for the

highest price was shared between Tune Download Shop, NRJ Kauppa and GoMobile Musiikkikauppa. A similar dispersion could be seen with the album price comparison for the Iron Maiden album “The Final Frontier”, the price starting from 9,79€ from 7Digital, and ending in 12,49€ from Meteli.net Downloads. In both cases Poimuri ranged in the middle, after the larger, more international stores, but before any locally administrated store.

The price differentiation in single tracks for “Astronautti” ranged from 0,99€ to 1,49€. The lowest price was found from Ovi Musiikki and iTunes, and the highest was from Meteli.net Downloads. On “The Final Frontier” there were some songs that were over 7 minutes long, the longest being 11 minutes and a single second (11:01). On every other music store that operated in Finland except Poimuri, these tracks were almost double the price of a normal individual song from the album. That is why the price differentiation for the single tracks on “The Final Frontier” was between 0,99€ and 3,49€. Stores that had the high pricing for longer songs priced the shorter ones from 1,49€ to 1,69€. Stores that didn't do the high pricing were iTunes, Ovi Musiikki and Poimuri.

Some stores had older albums priced specially. In Poimuri there was a Mid-Price section that had all albums for 7,90€, and songs from these albums for 0,99€. In Meteli.net Downloads there were sections for albums for 9,99€, for albums for 8,99€, and for albums for 7,99€. In 7Digital random older albums were priced lower than others, but no separate section for these albums was found.

The overall lowest pricing was on sites that were operated by a company with distinct activity in international markets, such as iTunes, Ovi Musiikki and 7Digital. These stores all contained fresh albums under 10€, and Ovi Musiikki and iTunes had priced individual songs under 1€. Of the stores that operated only in Finland, Poimuri seemed to be the cheapest one.

It was hard to include Spotify or Grooveshark in the equation when doing the price comparison, as these both rely on streaming the songs online from their own application instead of selling copies of MP3-files, therefore both should be described more as a service instead of a store. Both of them work on a monthly subscription -based payment

plan, Grooveshark costing $3 a month for “VIP Pass”, and Spotify costing 4,90€ a month for “Unlimited” and 9,90€ a month for “Premium”. These paid subscriptions bring special features, such as possibility to download songs for offline listening, mobile application, ad-free playing time, and more. The payment of these subscriptions could be done by a credit card or Paypal.

The payment methods used in stores were rather similar. All stores accepted credit cards, Visa and Mastercard being the most popular choices. The stores that operated in Finland accepted e-payment from most of the local banks, and it was also possible to buy single songs via SMS payment with a mobile subscription from local operator. The international stores accepted Paypal and various other payment methods, but most of them were not in use in Finland.

Download.NetAnttila and Ovi Musiikki had a prepaid account where you could deposit money and do one-click buying of songs and albums on their site. CM Store.fi, MTV3 Store Download and DNA Musiikkikauppa were also having a similar feature, which used a Finnish service called “APE Kukkaro”, a service that works as a centralized prepaid account for several online web stores of different variety. As they advertise on the website, this is a service that is designed to make buying from a Finnish online store easy and secure.

5.1.3 Store usability and design

In the chapter for concept design theory (chapter 4.3), definitions of a program or a system with good usability according to Wiio (2004) were described. These were understandability, effortlessness, comprehensiveness and aesthetic pleasantness. In this chapter, I plan to use these components as criteria for comparing the store usability and design, additionally keeping in mind all the time how the stores compare to the new market changes.

Contributing to the effortlessness, an important part of usability with an online music store is the format in which the music is distributed. This can either help customer to

enjoy the purchased product, or make it so difficult that the customer will choose to stay away from the store completely.

The most common file format seemed to be DRM-free, watermarked MP3, encoded with a bit rate of 192kbps or higher. Some stores, such as Tune Download Shop, NRJ Kauppa and GoMobile Musiikkikauppa sold only DRM-protected WMA files. Poimuri is having some of the catalog in that format also, but they are currently encoding them to DRM-free MP3. iTunes used 256kbps DRM-free m4a and 128kbps DRM-protected m4p, both of them formats that iTunes, iPhone and iPod in its various forms plays effortlessly. 7Digital was the only shop to offer their songs in AAC.

In most of the stores the purchased song was downloadable only as a zip-package. The ones that didn't do this were Ovi Musiikki, Meteli.net and iTunes, Ovi Musiikki and Meteli.net providing a straight link to the MP3 download, and iTunes downloading the track immediately to the application's music library. Nokia offers an application similar to iTunes called Ovi Player, that supports similar music library synchronization with the store as iTunes. Spotify and Grooveshark were excluded as they didn't offer any files to download, just a stream of music, though both had the option to download music to the player for offline listening.

During the research I came to a conclusion that a good design takes care that the user interface is presented neatly and the visual design pleases the eye, so that the customer finds what he or she is looking for and enjoys the site while browsing it. Wiio described these as aesthetic pleasantness and comprehensiveness. The main difference in layout and design between the local and the international stores or services was that the international stores looked more professionally designed, more uncluttered and they were a pleasure to use. It seemed like they were more designed with the end user in mind, not as much as a consumer who must be told what to buy, but more as a person who might enjoy using a store that made navigation and finding products convenient.

According to my comparison, all sites that had technical implementation done by SecuryCast, these being CM Store.fi, Tune Download Shop, Download.NetAnttila, DNA Musiikkikauppa, NRJ Kauppa, MTV3 Store Download and GoMobile Musiikkikauppa, appeared to be slightly unfinished and honestly a bit unprofessional,

though it is not clear if also the design was done by the same company. Additionally they all looked and functioned almost the same, not far from being cast from the same mold, a thing that was rather apparent after using them for a while.

A brilliant example of this was found when reading the information pages of Tune Download Shop, Download.NetAnttila, DNA Musiikkikauppa, MTV3 Store Download and GoMobile Musiikkikauppa, all of them having a paragraph stating with exactly the same words how a wide selection of domestic products is very important to them, how you find products from larger and smaller record labels, and how you find products from their store that are not even available in a traditional record store. All true perhaps, but more or less qualities of every digital music store. Some of the SecuryCast stores were cluttered with ads of the products that the operating company wanted customers to buy, the worst being MTV3 Store Download (figure 3) that filled large amount of the browser window with rather big banners.

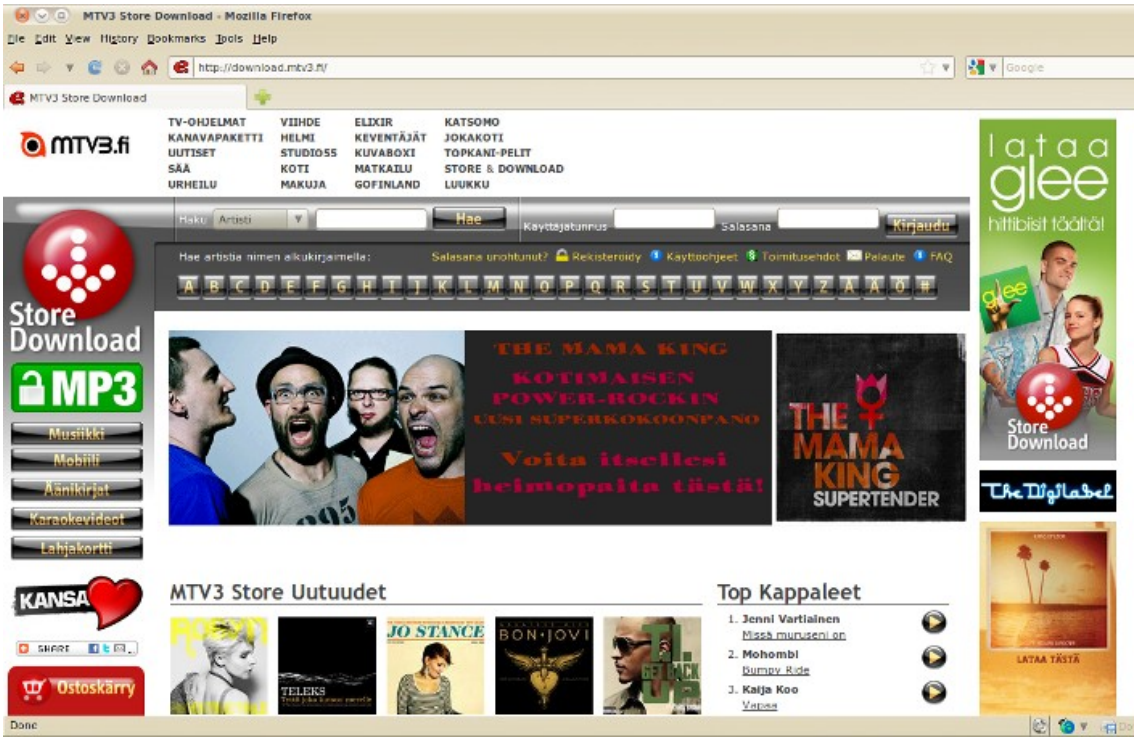

FIGURE 3. MTV3 Store Download main page.

When compared to other stores, design for Poimuri was ranked in the middle, with looks that were neutral to the eye, but unfortunately a bit dull. Meteli.net Downloads was a bit better, with a design that looked okay, though not necessarily well arranged,

and having a neat looking slider for browsing the catalog, but it proved to be slightly impractical when trying to browse only albums of which there were over 71.000 even for the electronic genre only, thus small movement of the slider jumped thousands of albums forward. Information sections seemed to be outdated in every domestic store, especially in Poimuri that listed the wrong payment methods on the information page.

Designs that truly shined were found from iTunes and Spotify, Ovi Musiikki and Grooveshark coming pretty close, though Grooveshark could be considered slightly cluttered compared to the aforementioned three. 7Digital's design was also good, though a bit plain, good and plain being something that Ovi Musiikki did faintly better.

When using the store, a really important feature to most customers must be the search. The effectiveness of this feature varied a little, as I was mainly able to find everything I needed to. All stores presented their search rather well, but again the international stores showed how it is supposed to be done. A preferred search engine was one that presented all possible content clearly on one page, artists, songs and albums in their own sections, and had optimized result presentation, heaving the most relevant ones on top. Spotify did (figure 4), so did iTunes, and so did Grooveshark.

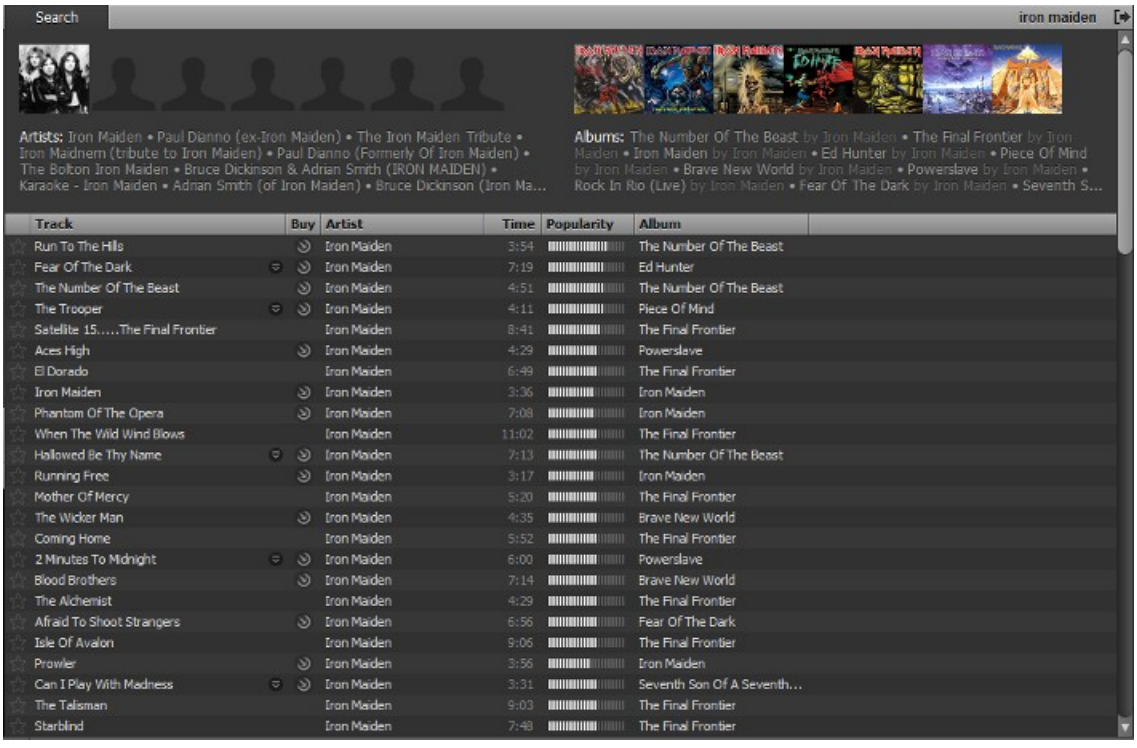

FIGURE 4. Search results in Spotify.

From domestic stores, the one that surprised the most was Meteli.net Downloads, which did the aforementioned features too in a clean and nice manner. Poimuri also tried, coming out with a result page resembling the one on Spotify, but unfortunately the page presented artists and albums in a too small section to be considered clear and good looking. Search for Ovi Musiikki was definitely optimized, but the presentation was not too shabby, blurting everything on one big list. Search on SecuryCast sites had slight problems with optimization, such as when searching for Iron Maiden from all fields the first results were compilations on which the band had individual songs, or with presentation, most sites just blurting all on a chaotic list.

All the stores had previews that were 30 seconds per track. Of the stores, best preview players were found from iTunes and Meteli.net Downloads. In both the player was integrated sophisticatedly to the interface, it presented what was playing, and it was possible to continue to use the store during the playback of the preview. Spotify and Grooveshark also had excellent players, but that is necessary for their function as a music streaming service.

The one preview implementation that was definitely different from the rest, although not necessarily in a good way, was the one on Poimuri, which consisted of a pop-up that opened a preview in Windows Media Player 11 -browser plugin. The problem with this was that it broke the design by clearly looking like it didn't fit in the picture. This must have been the most reasonable solution when all media on site was DRM-protected, but now when most products sold are in MP3-format it just cannot be justified. Also, some sites that sold only DRM-protected songs still had a flash player, so the technical implementation is clearly possible.

SecuryCast sites didn't fare too good either as they all had a preview system that consisted of a single icon, which started to play when you clicked it. The problem was that when you moved your mouse, the music stopped. Ovi Musiikki had a similar preview player, but it didn't stop the track after moving the cursor around, but it stopped of course when you left the page.

Account registration was necessary for most of the stores, exceptions being Poimuri, Meteli.net Downloads and Grooveshark, though all of them recommended registration

for different reasons. Poimuri recommended registration for gaining S-Bonus and benefits when paying with an S-Etukortti. Registration for Meteli.net Downloads was necessary for receiving a list of bought tracks for later examination, and there were advantages promised for registered customers that would be announced later. The main benefit of creating a Grooveshark account is the ability to save the songs the user likes, so it is possible to access them more easily from everywhere, where an internet connection is present. You could also register yourself as a VIP user, which brings forth the features and benefits that were mentioned before in chapter 5.1.2.

5.1.4 Social media integration

Social media is an emerging trend, and a thing which will be remembered of the 21st century. According to Kaplan and Haenlein (2010), social media "is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content." These are e.g. social networking sites such as Facebook, or blogging sites such as Blogspot.

Ovi Musiikki, Spotify and Grooveshark had splendid social media integration, consisting of Facebook-groups, easy linking to tracks and albums with one-button click (figure 5), meaning that you can send a message with a link to that item on the service on the social media that is supported, and some specialties, such as the Spotify playlist -group, in which people could link their own playlists and find interesting playlists from other people. In Spotify it is even possible to connect to other users, so you can view what they are listening to and what sort of playlists they are sharing. The Facebook-group for iTunes had an interesting offer for US members of the group: Get 10 songs for free by only joining the Facebook-group for it, an offer that was rather attractive. Apple has also decided to bring out their own social network for music, called Ping, which is attached on iTunes. Apple describes Ping as a new social media for following your favorite artists and your friends, and for sharing the music you like.

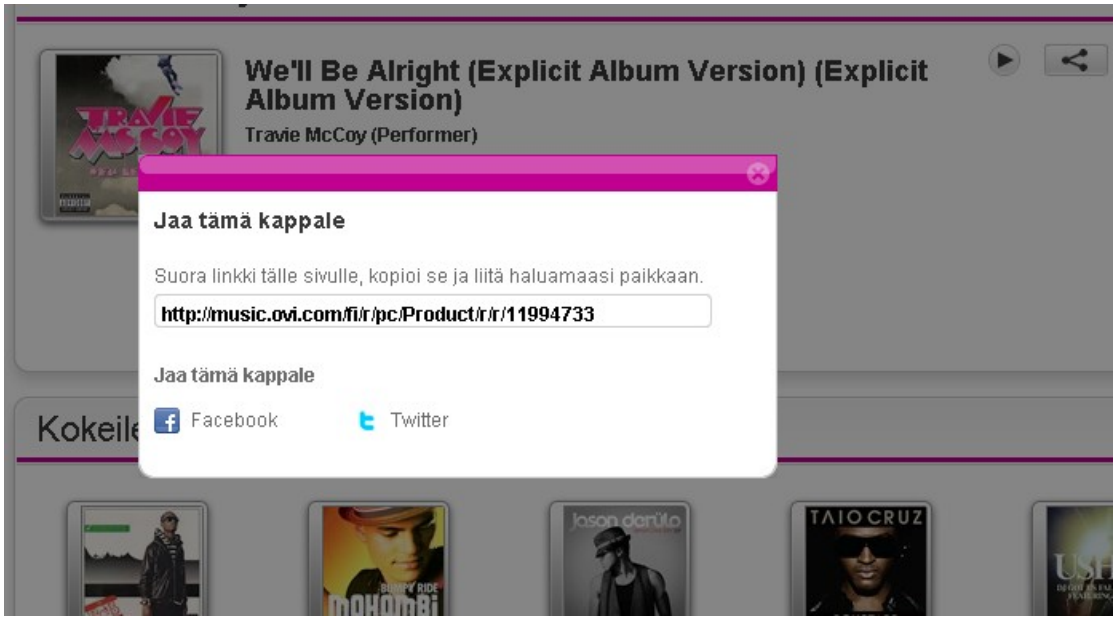

FIGURE 5. Social media sharing -menu in Ovi Musiikki.

The domestic stores had a quite poor integration with social media, except Poimuri that had its own Facebook group which was also a rather active one. On the group there have been several competitions and announcements of sales on Poimuri. CM Store.fi has a mailing list, called CM Store-klubi, which is somewhat outdated media and usually just considered spam. Meteli.net Downloads has a Like-button, that puts a note on the user's Facebook-wall identifying that you have liked this site, on their front page, but no additional Facebook-group, which seemed to some degree like a wasted opportunity. Also there is no Like-button for artists or songs, nor any button for sharing the item in any social media services.

5.1.5 Mobile device usage

As mobile devices have come a long way in recent years, the possibility to consume music with a cell phone is an important aspect of consideration for digital music stores. The quality player in this scene is definitely Apple with iTunes, having automatic music synchronization with iPhone when plugged into a computer through a USB-cable, easy access to iTunes Store from iPhone interface (figure 6), called the iOS, and a high quality music player embedded to their phone to top it off.

FIGURE 6. iTunes music store for iPhone.

Something that emerged when mobile internet connection was being planned, was the optimization of websites for mobile devices. Although not necessary with today's touch-based devices, due to mobile browsers being as advanced as they are today, it is still a great way to bring better usability and neater mobile browsing experience.

When doing the research, it was found that no domestic store's website was optimized for an iPhone, even less for any Android-based device. Ovi Musiikki (figure 7) was the only one, and for their merit the optimization there for an HTC Desire, an Android-based device used for testing, was really, really good. The interface was nice to use with the browser supplied with the phone, and after adding credit card information in account details one click buying was not only possible, but also almost inviting. After purchasing a song, it was baffling how convenient the continuation was, as the purchased song started to download itself on the background and added itself to the phone's music library. It has to be emphasized that there was no separate application that had to be downloaded, just ingenious usage of the phone's operating system's own features.

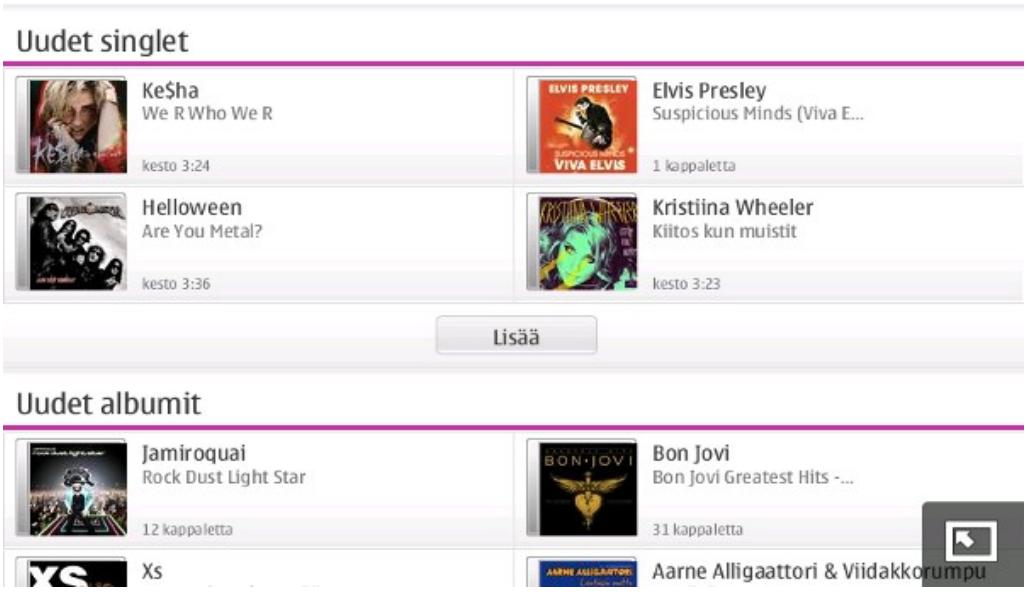

FIGURE 7: Ovi Musiikki on N900 native mobile web browser.

Spotify and Grooveshark both had cross-platform applications as features for their VIP accounts. iTunes, Ovi Musiikki, and the two aforementioned casting aside, none other of the competitors had mobile applications available, and the application for Ovi Musiikki is only available for cell phones developed by Nokia. 7Digital is offering a mobile application, but it was only for listening or downloading music that was already bought from their store.

After careful testing it became apparent that Meteli.net Downloads was the only domestic site from where it was possible to download a track using only a mobile device, albeit this was not an easy nor a comfortable task, nevertheless this process is more or less cumbersome on a normal computer. Using the mobile browser, I had to put the track in my shopping cart, open my shopping cart and go to the payment section, add all the necessary details, go to another confirmation site, choose my payment method, go to the e-bank confirmation site (although I was paying with a credit card), go back to the original confirmation site and download the song by clicking the link.

Other domestic sites presented the song in a zip-package that immediately presented a problem for instant synchronization, as you would need a separate application for extracting the content. The ones selling only DRM-protected WMA files were considered incompatible automatically.

5.1.6 Competitor potential

It would seem that the competitors presenting the new models for music consumption might be the hardest hitters, after all Spotify has proved itself to be rather popular among music listeners in Finland. Grooveshark is still in a rising state, but it seems to gain thrust even here in Finland, therefore in the long run it might prove itself as a worthy opponent.

From the stores, iTunes could be considered as a considerable adversary, as it has done this all successfully for quite a long time already. Regarding Ovi Musiikki, the future will show how Nokia will thrive as a brand and as a company. Though they already have a technically working implementation, it is not too clear how widely it is currently used in Finland. 7Digital is otherwise all good, but it feels slightly foreign with no Finnish localization at all, although they have a separate store for Finnish customers.

When comparing the domestic stores, Poimuri actually seems to be in a rather favorable position. It has better design than many other domestic stores, some social media activity, reasonable pricing policies, a mid-price section, and hopefully soon all MP3-format catalog. The one that is technically superior is Meteli.net Downloads in terms of search, catalog variety, available format and mobile usability, but the other stores are lacking in some features that Poimuri has, and “APE Kukkaro” excluded, they don't present any new features that Poimuri doesn't have.

6 CONCLUSIONS

The objective and purpose of this thesis was to provide an answer on how Poimuri could expand toward music market for modern mobile devices, by designing a concept of an interface for touchscreen-based mobile device, such as a modern smartphone. The purpose was filled with a concept that is both reachable in near future and conformable to the design drivers which were based on S-Group's preferences.

The problems that were faced in the process were mainly based on the prospect of not having a user survey for the application, which resulted in speculating on what the users might want from the concept. This is why it would be important to proceed with such a survey, if implementation of the concept is continued. The targeted users for the survey should be the ones that S-Group sees as the prospective target market. They should be asked if they could use the application in the form that is proposed in this thesis, if it is easy enough to use and if it does enhance their music consumption. If possible, there should be a prototype that is created that could be tested during the survey. It was also problematic to find current and relevant information about how much mobile phones are in use in Finland, and about mobile phone market shares in Finland.

The most interesting and surprising prospects were found from the competitor analysis, e.g. how many local stores used the same technical implementation, how few of the stores used social media for their benefit, and how low the overall picture of the Finnish market was. There were also some surprising details regarding the Poimuri itself, which were in a small conflict against the usability definitions mentioned in chapter 4.3.

The purpose of this thesis was successful, as the results of this concept design are something that S-Group is able to use as valuable information in the future. The concept is functional on a basic level, all the necessary functionality can be found to implement a prototype. When implementing that, the technical details should be expanded to meet the demands of product design, such as what resources are available and what is possible in the time frame that is defined by launch to the market. The possibility that this concept would increase sales for Poimuri is plausible, as it is described how usage

of touchscreen-based smartphones is increasing in the market, thus the need for mobile interfaces for digital music stores are needed.

There are aspects that should be considered before implementing the design, such as is this a working business model in the long run, and is it possible for S-Group to develop its usability to such a high level that people will feel comfortable using it. The alternative business models, such as streaming the music, are gaining market share, as was stated in chapter 2.6 about Spotify and other similar services. It is also notable, that the product should not be released half ready, but it should be made sure that it is done carefully and that the usability is kept in mind during the whole process.

If this concept would be implemented well enough, S-Group would benefit from it by possibly inviting new target markets, such as early adopters. The S-Group brand would see benefits with a more modern customer image that is technologically aware of today's developments. It is fully possible that these results could be used in a different project, as these are just general guidelines of functional user interface for mobile device. Additional research for this project could be done with testing a prototype on the target market, and with a market research on the business model validity.

The whole thesis process taught me a massive amount of valuable information on concept design, user interface design and the situation of digital music distribution in Finland. Especially the whole process of concept design was totally unfamiliar to me, but during the thesis process this opened up in a brand new way, and details on usability and user interface design are information that I will keep with me whatever I will do.

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APPENDICES

APPENDIX 1: 1 (2)

TABLE OF RESULTS FROM THE COMPETITOR ANALYSIS

	Operating entity	Pricing (album and one song from Pariisin Kevät – Astronautti)	Payment methods	Available formats
Poimuri	S-Ryhmä	9,9 € / 1,39 €	Card, e-payment, voucher code	WMA (DRM), MP3
Meteli.net Downloads	Meteli.net	10,99 € / 1,49 €	Card, e-payment, SMS	MP3
CM Store.fi Latauskauppa	Kesko	10,99 € / 1,29 €	Card, e-payment, SMS, APE-Kukkaro	MP3
Tune Download Shop	Sony BMG	12,95 € / 1,39 €	Card, e-payment	WMA (DRM)
Download.NetAnttila	Kesko	10,95 € / 1,29 €	Card, e-payment, SMS, prepaid account	MP3
DNA Musiikkikauppa	DNA	10,95 € / 1,29 €	Card, e-payment, SMS, APE-Kukkaro	MP3
NRJ Kauppa	NRJ	12,95 € / 1,39 €	Card, e-payment, SMS	WMA (DRM)
MTV3 Store Download	MTV3	10,99 € / 1,29 €	Card, e-payment, SMS, APE-Kukkaro	MP3
GoMobile Musiikkikauppa	GoMobile	12,95 € / 1,39 €	Card, e-payment	WMA (DRM)
7Digital	7Digital	9,49 € / 1,29 €	Card, Paypal, Clickandbuy	WMA (DRM), MP3, AAC
Spotify	Spotify	4,90 € a month / 9,90 € a month	Card, Paypal	Offline player in app
Grooveshark	Grooveshark	$3 a month	Card, Paypal	Offline player in app
Ovi Musiikki	Nokia	9,99 € / 0,99 €	Card, voucher code, prepaid account	MP3
iTunes	Apple	9,99 € / 0,99 €	Card	M4A, M4P (DRM)

	Social media integration	Mobile usability	Mobile web page optimization	Application for purchasing
Poimuri	Facebook-group	-	-	-
Meteli.net Downloads	-	-	-	-
CM Store.fi Latauskauppa	Mailing list	-	-	-
Tune Download Shop	-	-	-	-
Download.NetAnttila	-	-	-	-
DNA Musiikkikauppa	-	-	-	-
NRJ Kauppa	-	-	-	-
MTV3 Store Download	-	-	-	-
GoMobile Musiikkikauppa	-	-	-	-
7Digital	-	-	-	-
Spotify	Plenty	X	-	X
Grooveshark	Plenty	X	-	X
Ovi Musiikki	Sharing to Facebook etc.	X	X	X
iTunes	Facebook-group	X	-	X